

MEMORANDUM

TO: Muldoon Creek Water District (37-O) File

FROM: Corey Skinner

DATE: September 20, 2007

SUBJECT: Investigation of Guy Peterson Property

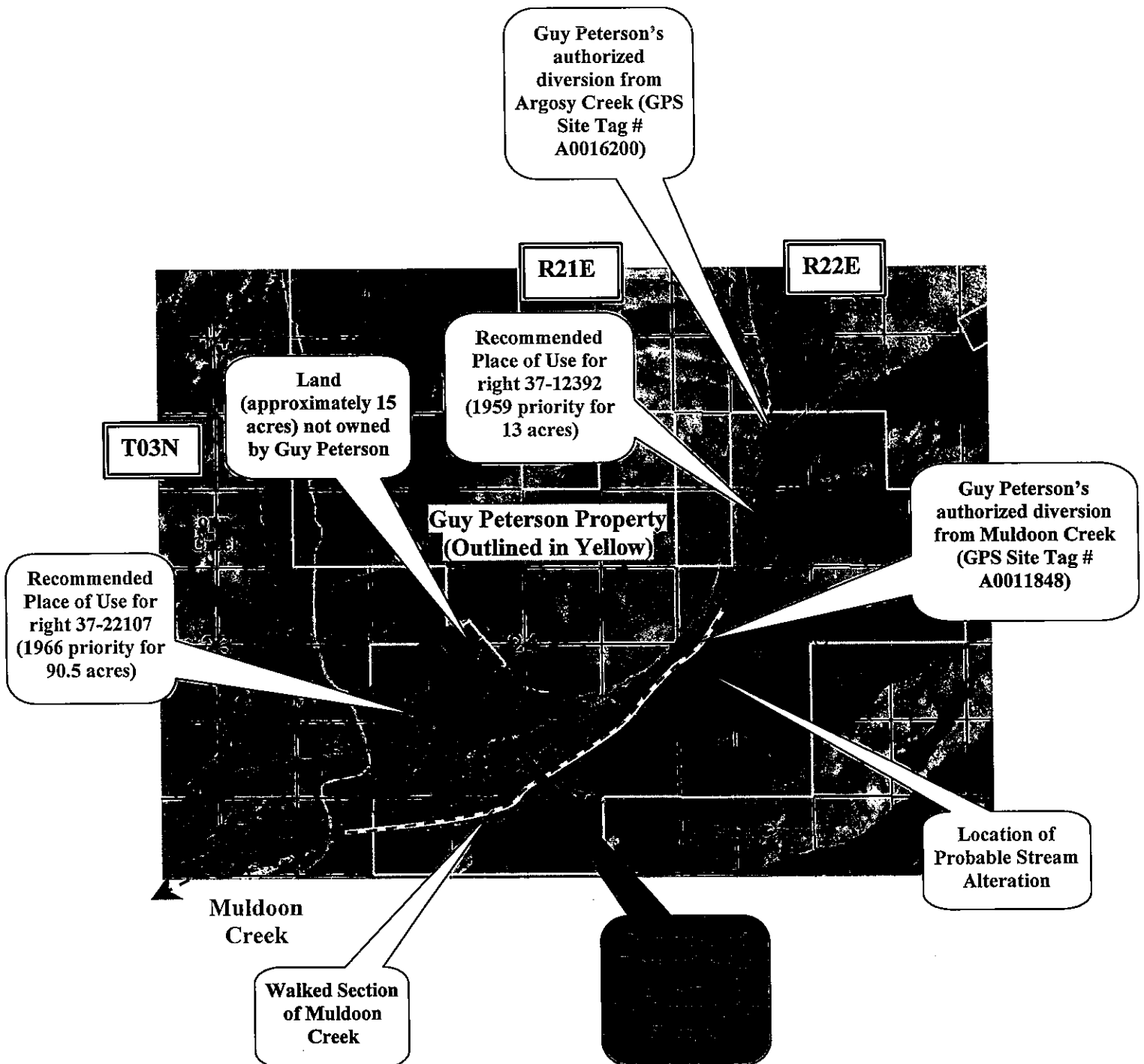
On September 5th and 6th, Jeff Cooper and I visited the Muldoon Creek area as a follow up to the August 10th water call filed by Gary Slette on behalf of his client, Muldoon Ranch Co LLC, and the August 16th response from IDWR (e-mail from Tim Luke). As part of our visit, we specifically looked into diversions from Muldoon Creek and Argosy Creek, on property owned by Guy Peterson. Note that allegations had been made by representatives of Muldoon Ranch Co that Guy Peterson was diverting &/or using water in excess of his water rights from Muldoon Creek and Argosy Creek.

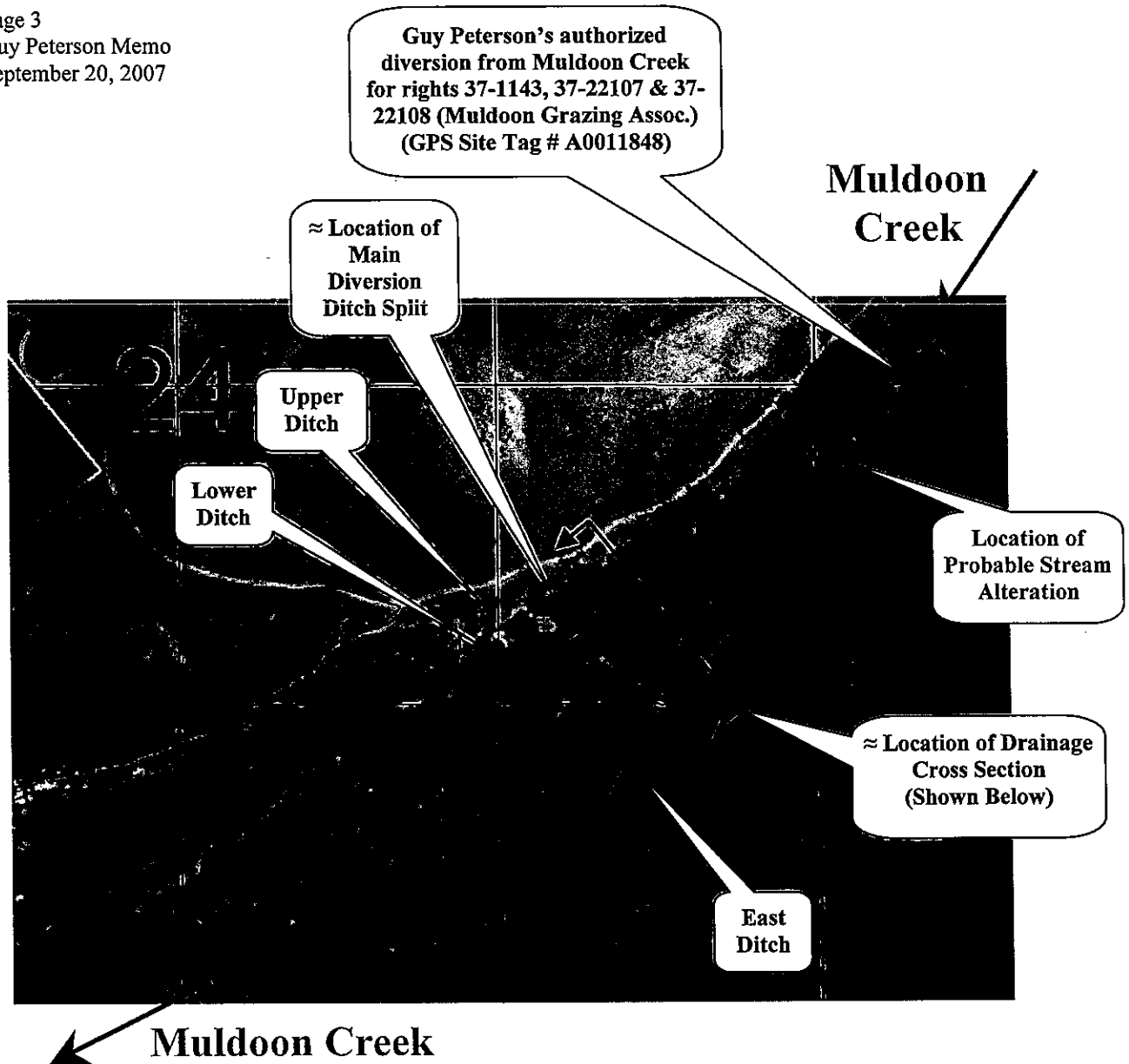
On the morning of September 5th, Jeff Cooper and I parked at the Muldoon Grazing Association upper diversion, located on the Muldoon Grazing Association property within the NENENE of Section 26 (T03N, R21E). We then proceeded to walk up Muldoon Creek through property owned by Guy Peterson all the way to just above Guy Peterson's authorized diversion from Muldoon Creek (GPS Site Tag # A0011848) located within the SWNW (Government Lot 2) of Section 19 (T03N, R22E). Along the way various locations of items of interest were observed and documented. Upon returning to the vehicle we were met by Guy Peterson's wife who questioned what we were doing and why we were there. After explaining the situation, she proceeded to leave and shortly thereafter Guy Peterson showed up for a further explanation. After discussing the situation with Guy Peterson, Jeff and I proceeded to drive further up Muldoon Creek and observed Guy Peterson's diversion from Argosy Creek (a tributary stream to Muldoon Creek). We then stopped by Guy Peterson's authorized diversion from Muldoon Creek (GPS Site Tag # A0011848) and observed that significantly less water was being diverted from this location than what had been observed earlier in the day.

Jeff and I were unable to complete our entire Muldoon Creek investigation on September 5th, so we returned to the area on September 6th. During the September 6th visit, we once again visited Guy Peterson's authorized diversion from Muldoon Creek (GPS Site Tag # A0011848) and observed that water was being diverted in an amount similar to the amount first observed on September 5th.

The following maps, photos, and comments document our September 5th and 6th observations relating to Guy Peterson's property....

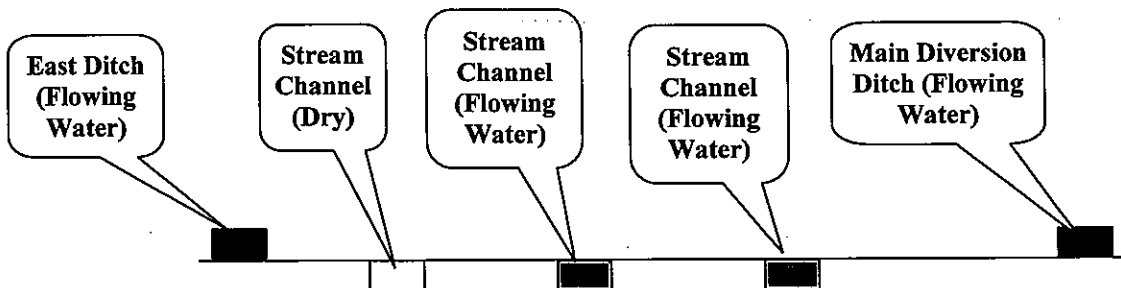
BELOW: Location reference map showing various points of interest on Guy Peterson's property in relation to the overall Muldoon Creek drainage and relative to each other.





ABOVE: Close up view of Muldoon Creek area between Guy Peterson's authorized diversion from Muldoon Creek (GPS Site Tag # A0011848) and the authorized place of use for the water rights from the diversion.

BELOW: Sketch (not to scale) of Muldoon Creek drainage cross section in area shown in view above (between diversion and place of use) showing two ditches and three stream channels at this particular section.

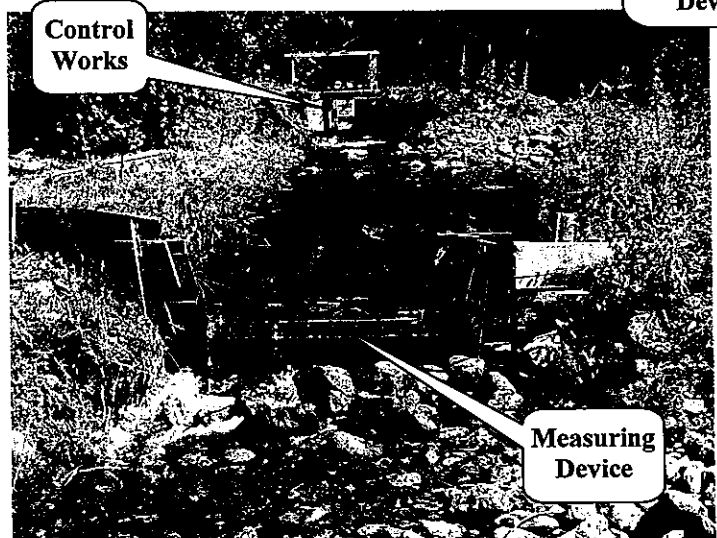
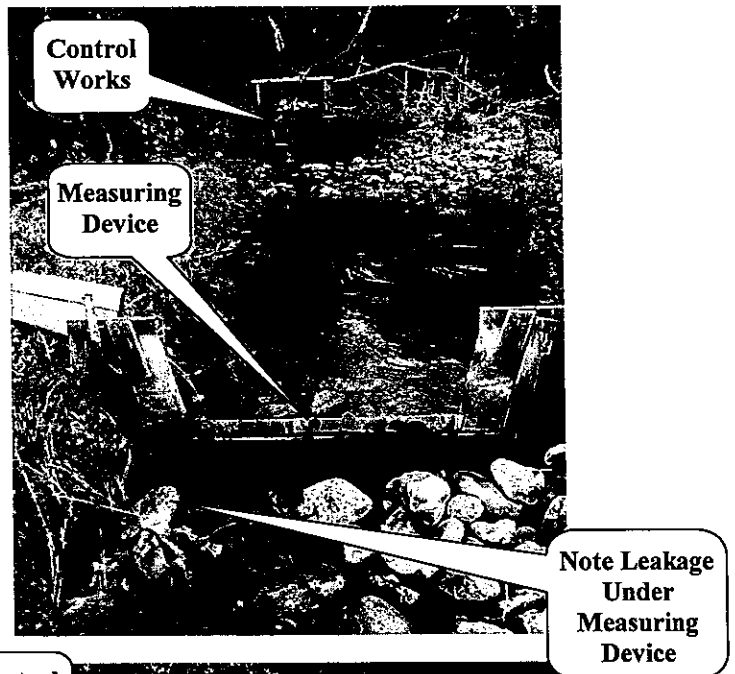
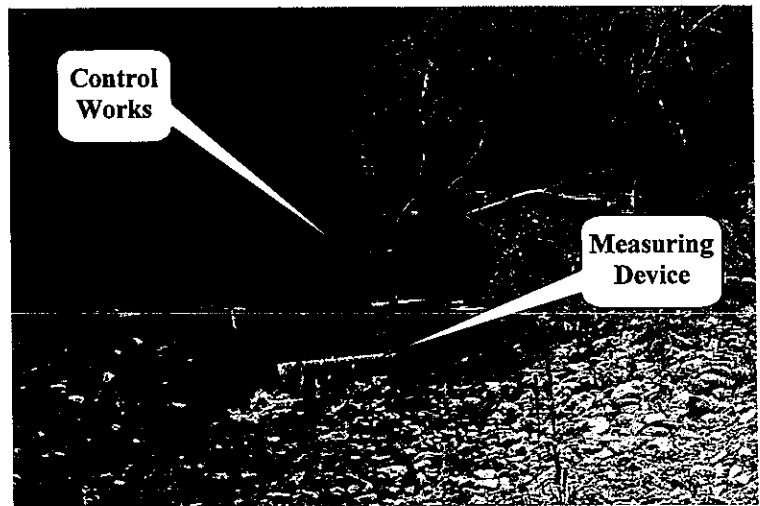


Note that the Main Diversion Ditch splits into two separate ditches (upper & lower) just downstream of this particular section.

RIGHT: View on 9/5/2007 looking up Guy Peterson's main diversion ditch, just below Guy Peterson's Muldoon Creek diversion (Site Tag #A0011848). At the time this photo was taken, middle of the day on September 5th, the depth of the flow over the measuring device (3.0 foot Cipoletti weir) was approximately 2 inches (less than 1.0 cfs total flow). SRBA Recommendations 37-1143 (2.8 cfs & 1910 priority in the name of Guy Peterson), 37-22107 (1.81 cfs & 1966 priority in the name of Guy Peterson), and 37-22108 (0.07 cfs & 1966 priority in the name of Muldoon Grazing Association) are the only rights that can be diverted from this diversion. In addition, this is the only diversion listed on the same three SRBA recommendations.

RIGHT: View on 9/5/2007, later in the day (approximately 3 hours and 45 minutes after the top photo was taken), looking up Guy Peterson's main diversion ditch, just below Guy Peterson's Muldoon Creek diversion (Site Tag #A0011848). At the time this photo was taken, water was not flowing over the weir blade. However, note the water flowing under the measuring device.

RIGHT: View on 9/6/2007 looking up Guy Peterson's main diversion ditch, just below Guy Peterson's Muldoon Creek diversion (Site Tag #A0011848). At the time this photo was taken, the depth of the flow over the measuring device was once again approximately 2 inches (less than 1.0 cfs total flow).



Note that this channel appears to be lower than where the creek is currently flowing



ABOVE: View approximately 420 feet downstream of Guy Peterson's Muldoon Creek diversion (Site Tag #A0011848) shown on previous page. This is the location of a suspected stream channel alteration where it appeared that material has been placed along the left (east) side of Muldoon Creek blocking off a lower channel (indicated by dashed arrow). The material that Jeff is standing on forces Muldoon Creek to the right (west) towards Guy Peterson's main diversion ditch below his Muldoon Creek diversion (Site Tag #A0011848). Note that the material Jeff is standing on appears to have been placed or piled in a linear, unnatural, manner. In addition in the general area where Jeff is standing some signs of cut trees &/or bushes was observed and a couple of small loose pieces of black plastic were observed. The GPS coordinates for this location are 2508771, 1375128 (IDTM coordinates NAD83 projection).



ABOVE: View on 9/5/2007 looking down Guy Peterson's main diversion ditch(es) approximately 1600 feet downstream of Guy Peterson's Muldoon Creek diversion (Site Tag #A0011848) showing the upper and lower delivery ditches (branches off of the main diversion ditch below the point of diversion). This photo was taken approximately one hour after the top photo on page 4 was taken. Estimates of the flow in both of these ditches was made using the "orange peel method" by timing a floating stick through a known length and average cross section for that length. The velocity through a 10-foot section of the upper ditch was 1.42 feet per second (7 seconds for a floating stick to travel the 10 measured feet). The average cross section was 3.75 square feet (9.0 feet wide x 5 inches deep). Since flow equals velocity multiplied by area, the flow through the upper ditch could have been as much as 5.36 cfs (1.42×3.75). However, since the water flows the fastest at the surface and the middle of the ditch, the 5.36 cfs estimate is probably high. Using a standard reduction factor of 60% – 80% indicates that the **flow in the upper ditch was probably in the neighborhood of 3.2 cfs – 4.3 cfs**. The velocity through a 10-foot section of the lower ditch was 1.25 feet per second (8 seconds for a floating stick to travel the 10 measured feet). The average cross section was 2.67 square feet (8.0 feet wide x 4 inches deep). Since flow equals velocity multiplied by area, the flow through the upper ditch could have been as much as 3.33 cfs (1.25×2.67). However, since the water flows the fastest at the surface and the middle of the ditch, the 3.33 cfs estimate is probably high. Using a standard reduction factor of 60% – 80% indicates that the **flow in the lower ditch was probably in the neighborhood of 2.0 cfs – 2.66 cfs**. Note that the total of the flows in the upper and lower ditch are significantly greater than the amount of water being diverted at Guy Peterson's Muldoon Creek diversion (2 inches of head over a 3.0 foot Cipoletti weir plus leakage under the measuring device).



ABOVE: View on 9/5/2007 of flow in the “East Ditch” along the east side of Muldoon Creek. This ditch runs along the hillside towards the mouth of Buck Canyon. Water from this ditch is apparently used to irrigate approximately five acres of pasture. However, note that Guy Peterson does not have any water right (s) that allow for the diversion and use of water from Muldoon Creek on the east side of the creek. An estimate of the flow in this ditch was made using the “orange peel method” by timing a floating stick through a known length and average cross section for that length. The velocity through a 10-foot section of this ditch was 2.5 feet per second (4 seconds for a floating stick to travel the 10 measured feet). The average cross section was 2.13 square feet (3.0 feet wide x 8.5 inches deep). Since flow equals velocity multiplied by area, the flow through this ditch could have been as much as 5.33 cfs.

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LEFT: View on 9/5/2007 further down the “East Ditch” showing the ditch contouring around the hill towards the Buck Canyon drainage. Note how much higher the ditch is above the Muldoon Creek bottom (right edge of view).

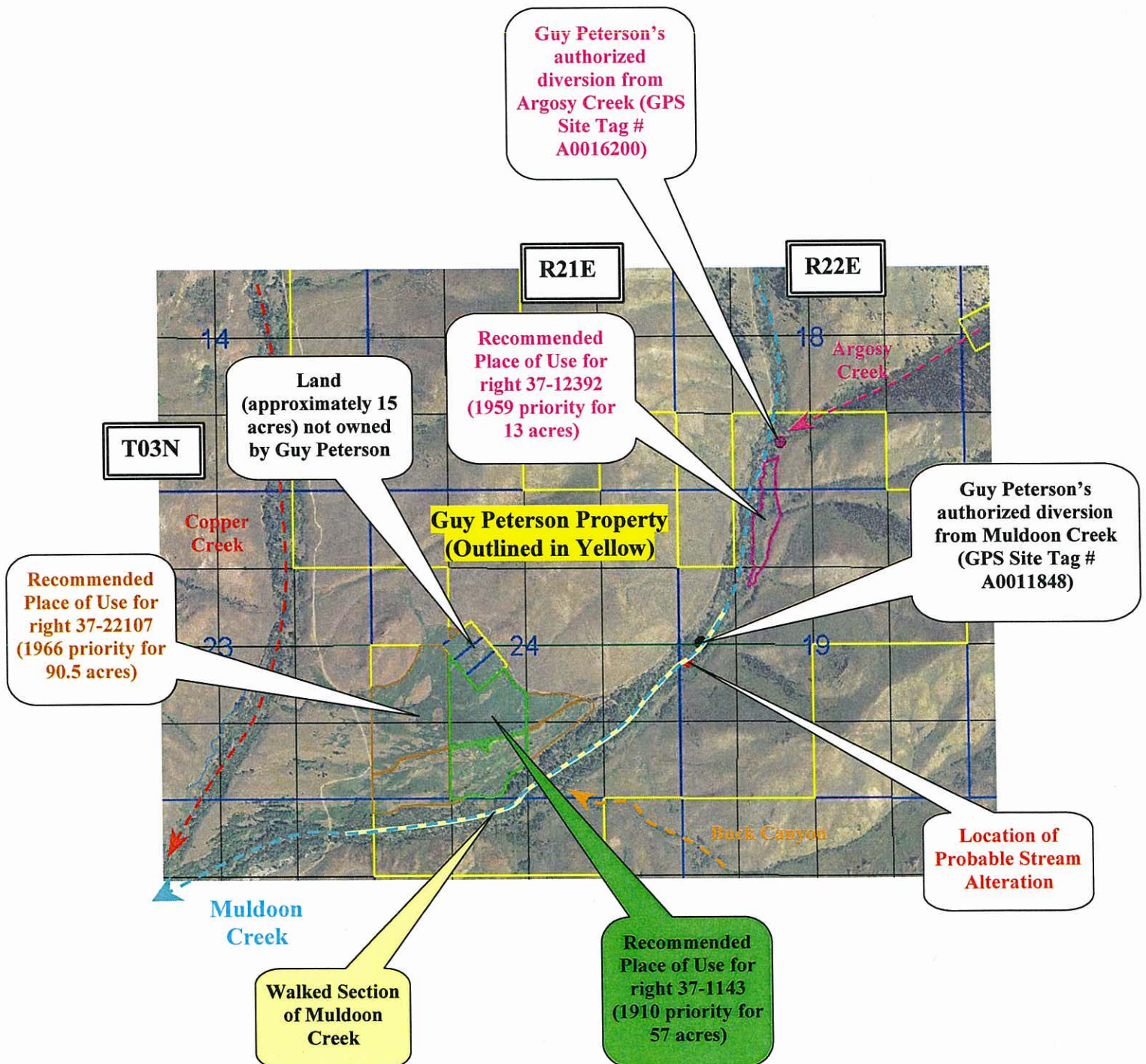


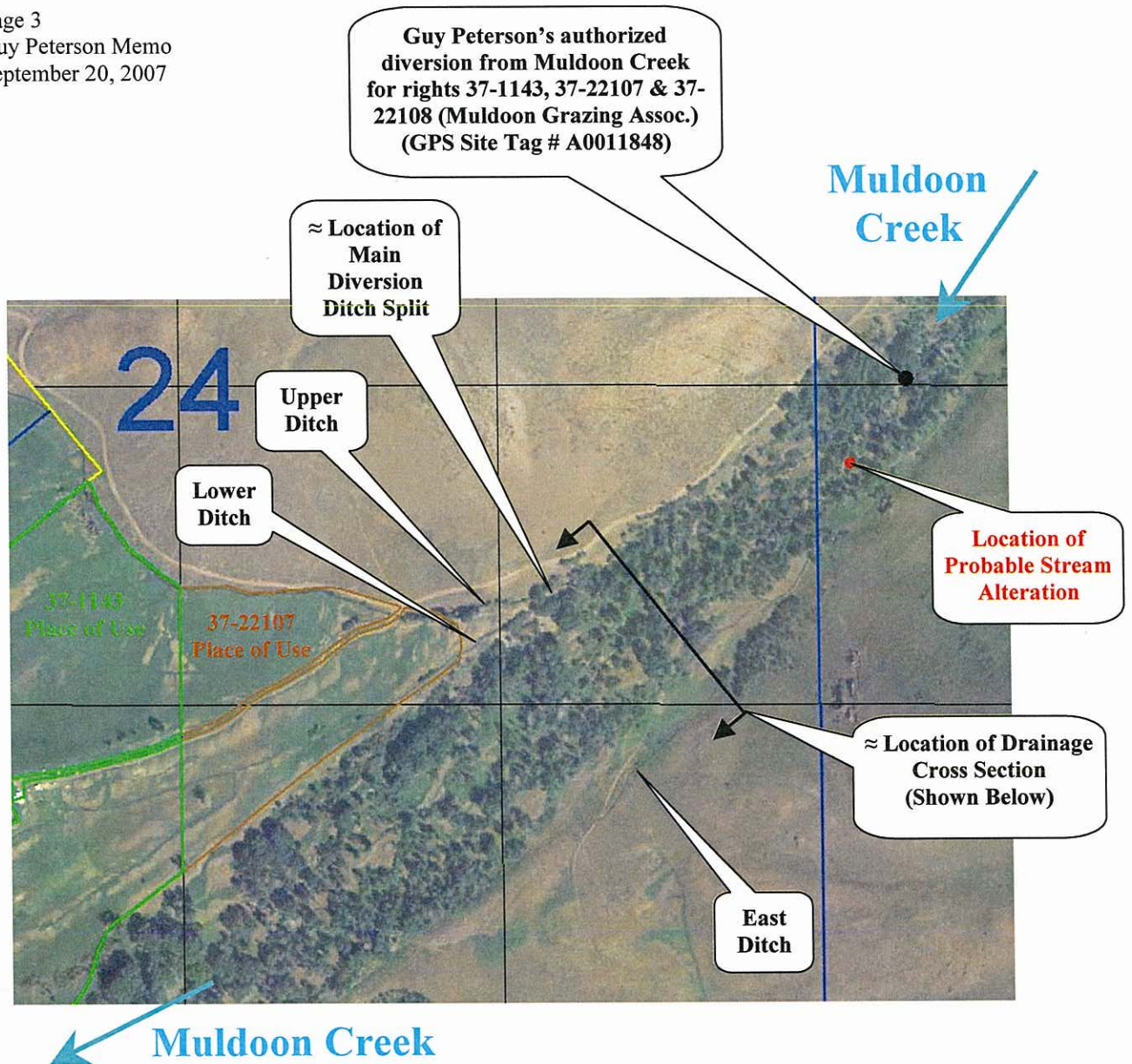
ABOVE: View on 9/5/2007 looking at Guy Peterson's diversion from Argosy Creek (Site Tag #A0016200). SRBA recommendation 37-12392 (0.26 cfs & 1959 priority) is the only right authorized at this particular diversion. Jeff is standing at the approximate location of the measuring device on Guy Peterson's ditch from Argosy Creek (view shown below). At the time this photo was taken, a minimal amount of water was being diverted at this diversion.



LEFT: View on 9/5/2007 looking at Guy Peterson's measuring device on his ditch from Argosy Creek. The measuring device consists of a rectangular weir with an opening width of approximately two feet (not actually measured since the tape measure was left in the truck). There was just a small amount of water flowing over the device (approximately $\frac{1}{4}$ inch of head). However, it appeared that the water had recently been shut off since the measuring device was wet at a higher level than the level at the time this picture was taken. In addition, rocks above the water level in the ditch were wet.

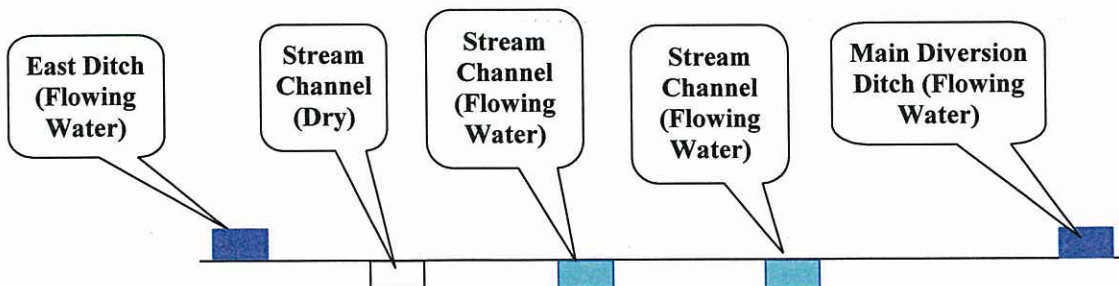
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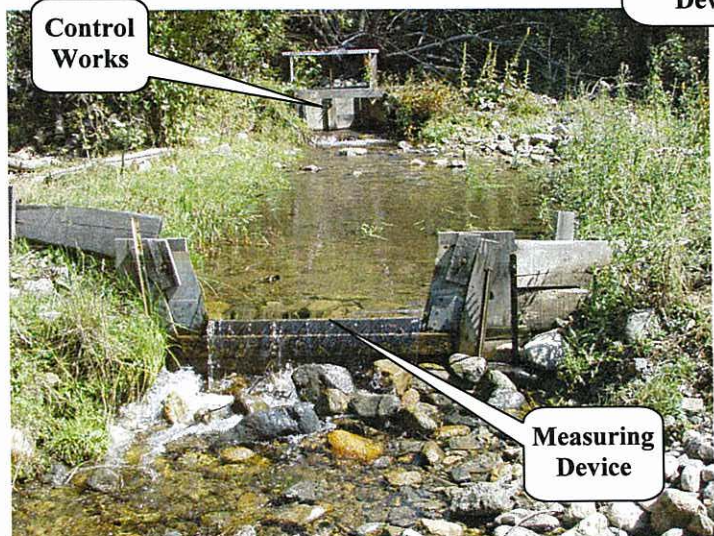
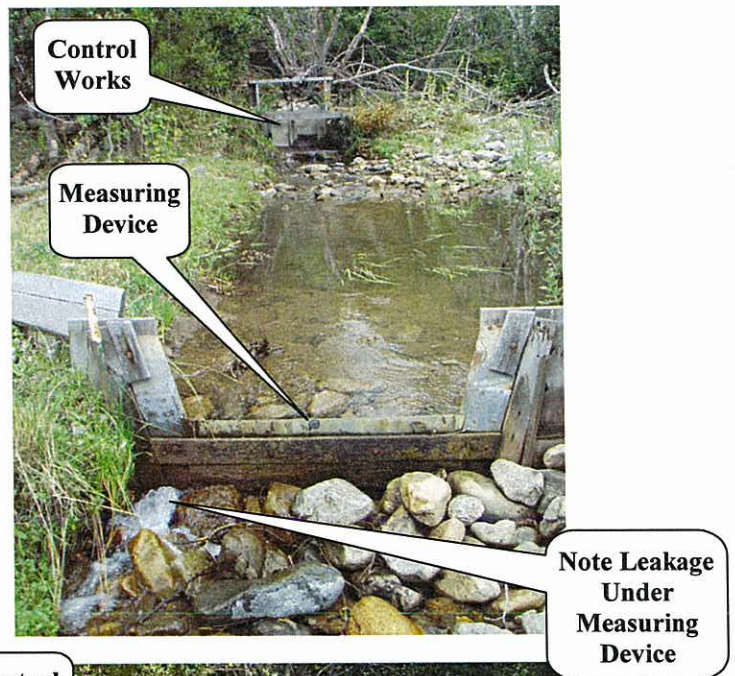
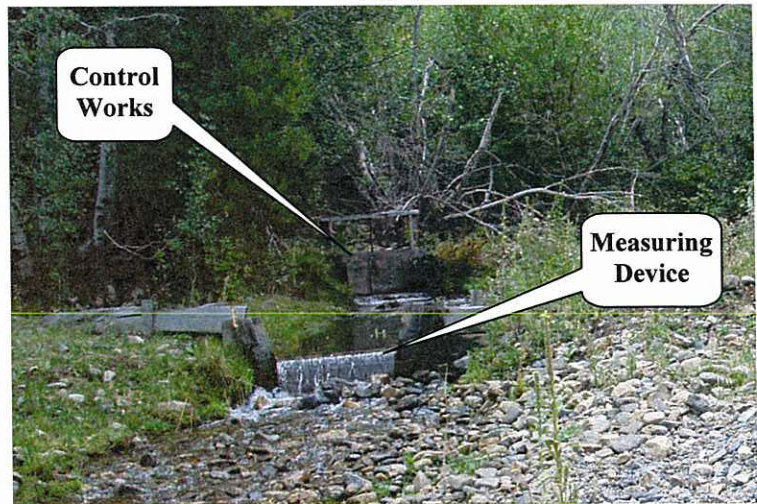


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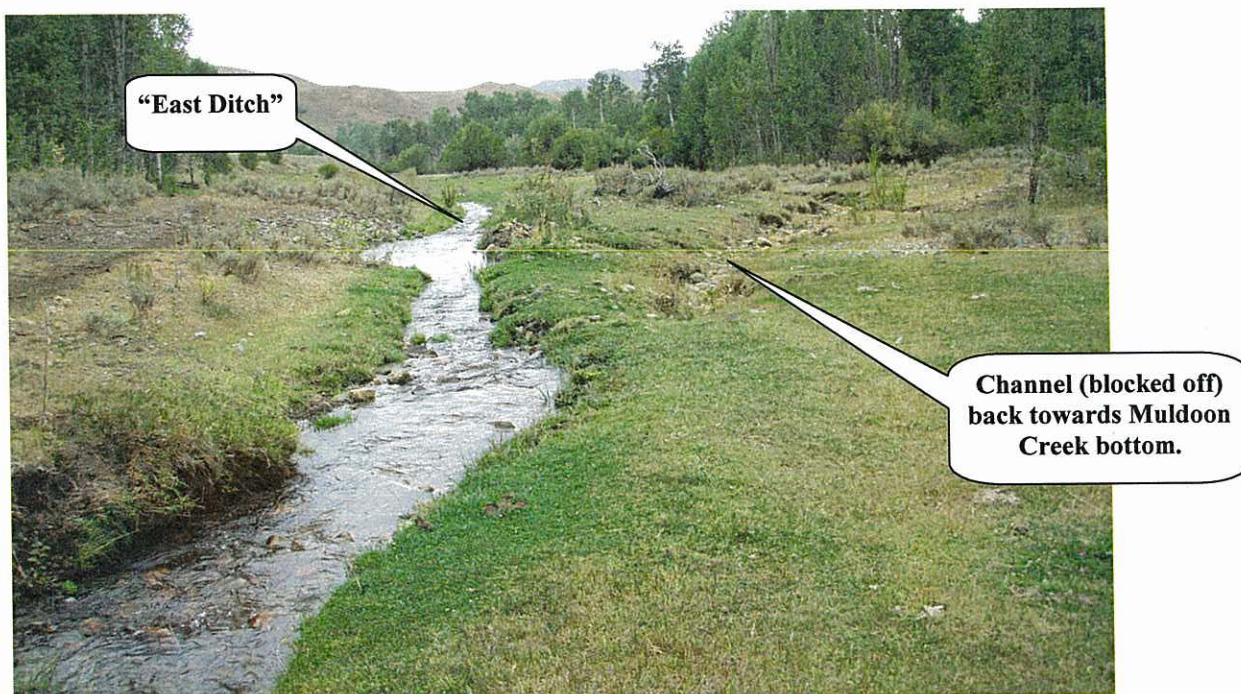




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